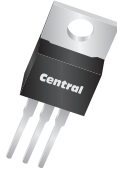


CQ220-12M3

SILICON
THREE-QUADRANT TRIAC
12 AMP, 600 VOLT



TO-220 CASE



www.centralemi.com

DESCRIPTION:

The CENTRAL SEMICONDUCTOR CQ220-12M3 is an epoxy molded silicon TRIAC designed for full wave AC control applications featuring gate triggering in three quadrants.

MARKING: FULL PART NUMBER

FEATURES:

- 3Q technology for noise immunity
- High commutation capability
- Triggering in three quadrants only

APPLICATIONS:

- Motor controls
- General purpose AC switching
- High power inductive load switching

MAXIMUM RATINGS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)				SYMBOL		UNITS
Peak Repetitive Off-State Voltage				$V_{\text{DRM}}, V_{\text{RRM}}$	600	V
Peak One Cycle Surge Voltage, $t=10\text{ms}$ ($T_J=125^{\circ}\text{C}$)				V_{DSM}	700	V
RMS On-State Current ($T_C=90^{\circ}\text{C}$)				$I_{\text{T(RMS)}}$	12	A
Peak One Cycle Surge Current, $t=16.7\text{ms}$				I_{TSM}	100	A
I^2t Value for Fusing, $t=10\text{ms}$				I^2t	78	A^2s
Average Gate Power Dissipation ($T_J=125^{\circ}\text{C}$)				$P_{\text{G(AV)}}$	1.0	W
Peak Gate Current, $t_p=20\mu\text{s}$ ($T_J=125^{\circ}\text{C}$)				I_{GM}	4.0	A
Critical Rate of Rise of On-State Current						
Repetitive, $f=120\text{Hz}$ ($T_J=125^{\circ}\text{C}$)				di/dt	50	$\text{A}/\mu\text{s}$
Operating Junction Temperature				T_J	-40 to +125	$^{\circ}\text{C}$
Storage Temperature				T_{stg}	-40 to +150	$^{\circ}\text{C}$
Thermal Resistance				θ_{JA}	60	$^{\circ}\text{C}/\text{W}$
Thermal Resistance				θ_{JC}	1.4	$^{\circ}\text{C}/\text{W}$

ELECTRICAL CHARACTERISTICS: ($T_C=25^{\circ}\text{C}$ unless otherwise noted)						
SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNITS	
$I_{\text{DRM}}, I_{\text{RRM}}$	$V_{\text{DRM}}, V_{\text{RRM}}=600\text{V}$			5.0	μA	
I_{GT}	$V_{\text{D}}=12\text{V}, R_{\text{L}}=30\Omega$, QUAD I, II, III			50	mA	
I_{H}	$I_{\text{T}}=500\text{mA}$			50	mA	
V_{GT}	$V_{\text{D}}=12\text{V}, R_{\text{L}}=30\Omega$, QUAD I, II, III			1.3	V	
V_{TM}	$I_{\text{TM}}=17\text{A}, t_p=380\mu\text{s}$		1.39	1.55	V	
dv/dt	$V_{\text{D}}=\frac{2}{3}V_{\text{DRM}}, R_{\text{GK}}=\infty, T_J=125^{\circ}\text{C}$			500	$\text{V}/\mu\text{s}$	

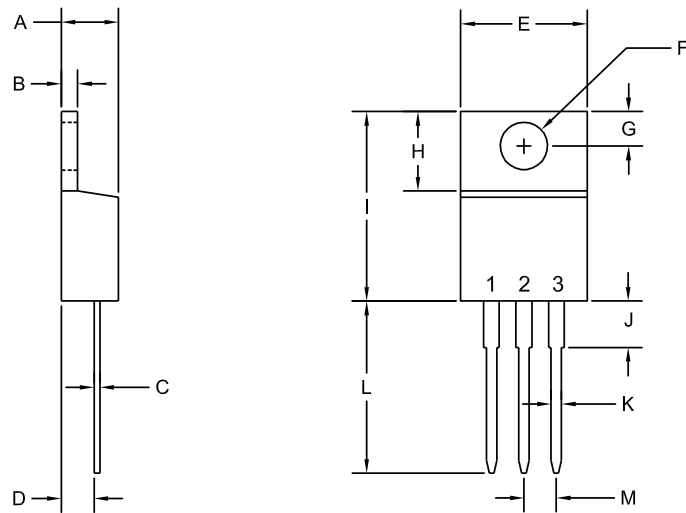
R1 (7-October 2015)

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TO-220 CASE - MECHANICAL OUTLINE



R2

LEAD CODE:

- 1) MT1
 - 2) MT2
 - 3) Gate
- Tab is common to pin 2

MARKING:

FULL PART NUMBER

SYMBOL	DIMENSIONS			
	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.170	0.190	4.31	4.82
B	0.045	0.055	1.15	1.39
C	0.013	0.026	0.33	0.65
D	0.083	0.107	2.10	2.72
E	0.394	0.417	10.01	10.60
F (DIA)	0.140	0.157	3.55	4.00
G	0.100	0.118	2.54	3.00
H	0.230	0.270	5.85	6.85
I	0.560	0.625	14.23	15.87
J	-	0.250	-	6.35
K	0.025	0.038	0.64	0.96
L	0.500	0.579	12.70	14.70
M	0.090	0.110	2.29	2.79

TO-220 (REV: R2)

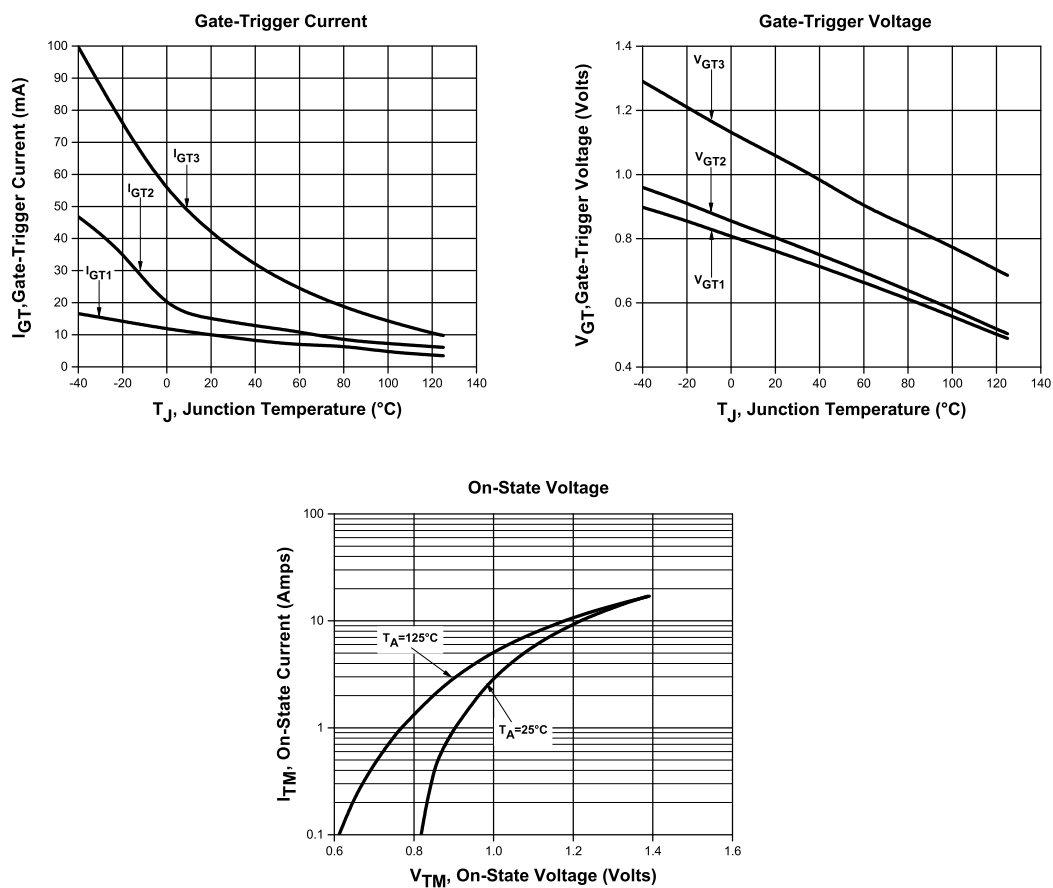
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TYPICAL ELECTRICAL CHARACTERISTICS



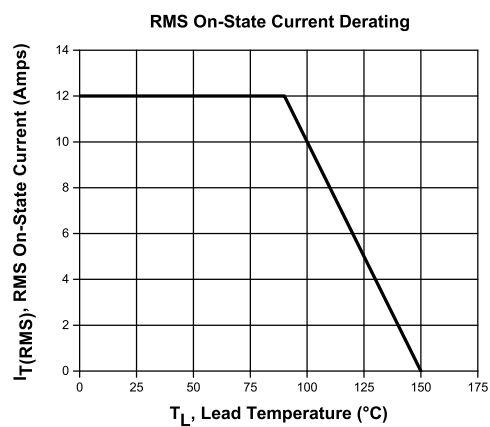
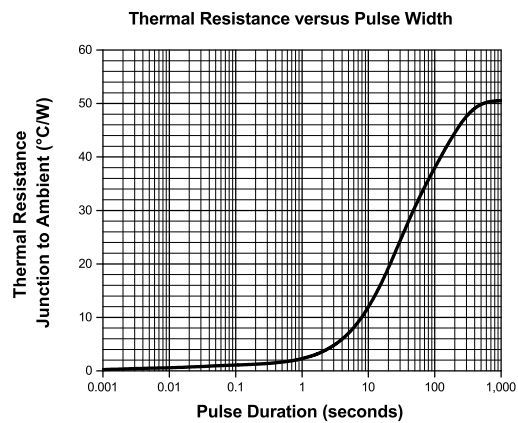
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